NASA GLENN RESEARCH CENTER

2012–2013 EXPLORING PROJECT

Project Description
The Exploring Project is a collaborative undertaking of Glenn Research Center's (GRC's) Educational Programs Office (EPO) and the Boy Scouts of America (BSA). This educational project provides exposure to research and technology activities specific to GRC and is designed to promote students interest in science, technology, engineering, and mathematics (STEM).

Exploring is part of Learning for Life's career education program, affiliated with the BSA, for young men and women who are 14 through 20 years old by Wed., Sept. 5, 2012. Explorer posts are usually initiated by local community organizations by matching their expertise, people, and resources to that of interests of young people in the community.

NASA GRC, in collaboration with the BSA, has hosted Explorer posts since the 1970s. GRC volunteers, who serve as Exploring Advisors, lead these posts and meet once a week from October to April to explore various aspects of STEM, NASA, and GRC. The five posts are listed in this application.

Project Goal
The primary goal of the Exploring Project is to expose students to different career choices in STEM with NASA and GRC.

The EPO is committed to increasing the number and diversity of students from underrepresented and underserved communities in NASA-related STEM fields. Traditionally, underrepresented groups in STEM include females, African-Americans, Hispanics, Native Americans, Pacific Islanders (natives of the Philippines, Guam, American Samoa, or Micronesia), and disabled students. **Please be advised that while the project is open to all equally qualified candidates**, GRC is very interested in recruiting applicants who belong to a recognized underrepresented group in STEM.

Glenn Research Center
The NASA Vision—To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind. The NASA Mission—To pioneer the future in space exploration, scientific discovery, and aeronautics research. As one of NASA's 10 field centers, the John H. Glenn Research Center at Lewis Field supports all NASA missions and the major programs of our Agency.

GRC works as a diverse team in partnership with government, industry, and academia to increase national wealth, safety, security, protect the environment, and explore the universe. GRC is distinguished by its unique blend of aeronautics and spaceflight experience. As we move toward a greater focus on spaceflight hardware development, we are benefiting from our various accomplishments and expertise in aeronautics. Our work is focused on technological advancements in spaceflight systems development, aeropropulsion, space propulsion, power systems, nuclear systems, communication, and human research.

GRC is located in the Great Lakes region of Ohio and occupies a 350-acre site adjacent to Cleveland Hopkins International Airport. The Center comprises over 150 buildings that contain a unique collection of world-class facilities. NASA GRC also includes the 6400-acre Plum Brook Station near Sandusky, Ohio.

You are encouraged to visit the GRC home page to learn more about our research activities and programs at http://www.nasa.gov/centers/glenn/home/index.html.

The five posts in the Glenn Exploring Project are

Post 630, Aeronautics Activities
Youth in this group will explore science, engineering, technology, and mathematics as applied to aerospace vehicles and propulsion systems. The post members explore aeronautics and propulsion concepts by building, testing, and flying models. Past post activities have included designing and testing of high-efficiency wings for aircraft, wind tunnel models, model rockets, and fan jet powered model cars as well as turbojet engine experiments, discussions of current events in aerospace, and GRC facility visits. The post activities are guided by the student's interests and desires.

Post 631, Computer Technology
Youth in this group participate in a variety of computer activities. Students learn computer technology through challenging and interesting hands-on activities. Creativity is encouraged. The students gain experience in fields such as animation, robotics, graphics, game programming, Web development, Arduino programming, signal processing, data acquisition, and image processing. They are also exposed to the traditional topics including programming, computer architecture, and basic circuitry. The post goes on a variety of tours of labs both at GRC and in the Greater Cleveland area. Fun activities are included such as going to play Whirlyball and hiking with an experienced guide. Students also participate in a group volunteer activity.

Post 632, BalloonSat Technology
Students in BalloonSat Post 632 will collaboratively design experiments for a springtime high-altitude balloon flight. The balloon will fly to about 100,000 ft up where the payloads will be above 99 percent of the atmosphere. The students will construct payload boxes and test hardware over the course of the school year. This is an opportunity to do real science in a near space environment 19 miles up. Competitions, tours, and a holiday party add to the main focus of planning for a successful flight day. A fall kickoff balloon flight is planned (weather permitting) for a chance for students to participate in a balloon launch and recovery.

Post 633, Human Spaceflight
Youth in this group will explore Human Spaceflight through a variety of hands-on activities. Learn the fundamentals of rocketry, power systems, robotics, and GPS Orienteering. Build, test, and launch your own model rocket, discover robotics, and build a robot. Participate in a robotics competition. Discover interesting environmental phenomena and discover what is required to protect a human crew from solar flares and cosmic radiation. Through various activities, you will learn how to cooperate and make decisions as a team. Work on a team to design a future space mission. Participate in research facility tours and make new friends.

Post 634, eXtreme Green
Youth will participate in eXtreme activities by experiencing what the next generation of GreenLab will be in the future. We concentrate on finding alternative, renewable, and sustainable solutions for self-sustainable renewable energy ecosystems and will be monitoring the Big 6 metrics in the GreenLab Research Facility. Youth will be engaged in conducting biofuel, biomass, and alternative energy optimization experiments, participate in eXtreme roundtable discussions, as well as analyze eXtreme green data that will be used in a world-class laboratory. The students will gain experience in the fields of biology, chemistry, electrical engineering, environmental science, mathematics, robotics, and fluid physics.

Eligibility Requirements

- Applicant must be a **U.S. citizen**, and 14 through 20 years old by the application deadline (Wed., Sept. 5, 2012).

Project Requirements

- All students (*including* past participants) must submit an application and meet the eligibility requirements.
- Students can participate in the same post for a maximum of 2 years.
- Students and parent(s)/guardians(s) are required to attend the Orientation on Thurs., Sept. 27, 2012.
- Students are expected to adhere to the tenure period (October to April).
- Students must complete a pre and post-evaluation. Completion of these forms is a project requirement, as your feedback is integral to the success of our programs.

Application Information

Students must complete and return the attached application and forms. Applications can be obtained at the following Web site: www.nasa.gov/centers/glenn/education/NASAExplorers_GRC.html. Applications must be post marked or date-stamped by our office no later than **Wed., Sept. 5, 2012**. Incomplete applications will not be processed. Placements **cannot** be made without the signature of a parent or guardian. **Dues for the program are $25 per post membership (multiple memberships are permitted if slots are available)**. No personal checks will be accepted for project dues. Note: If student has been selected the dues will be collected at the Orientation. Return all forms to

NASA Glenn Research Center
Educational Programs Office
Attn: Exploring Project
21000 Brookpark Road M.S. 7–4
Cleveland, OH 44135–3191

Selection Process

Student requests will be accepted on a first come and first serve basis. Application packet must be complete for consideration. Exploring placements are dependent upon the availability of the requested post slots. The EPO cannot guarantee an Exploring experience. Each post has limited placement.

Notification

EPO would notify the applicants via e-mail and carbon copy the parent/guardian and guidance counselor noted on the student's application by Thurs., Sept. 20, 2012. Students will be contacted to confirm their availability.

Students should notify the NASA Glenn Educational Programs Office by phone, 216–433–6656 or via e-mail, GRC-Intern@mail.nasa.gov, if their e-mail, phone (home/cell), or home address changes. Students should also call or e-mail when inquiring about the status of their application or to obtain additional information.

Schedule

Application Deadline	Wed., Sept. 5, 2012
Selection Notification Date	Thurs., September 20, 2012
Orientation/Start Date	Thurs., Sept. 27, 2012
Post 630/Aeronautics Activities Meeting Time	Every Thursday starting Oct. 4, 2012, 5 to 7 p.m.
Post 631/Computer Technology Meeting Time	Every Thursday starting Oct. 4, 2012, 5:15 to 7:15 p.m.
Post 632/BalloonSat Technology Meeting Time	Every Thursday starting Oct. 4, 2012, 5 to 7 p.m.
Post 633/Human and Spaceflight Meeting Time	Every Tuesday starting Oct. 2, 2012, 5 p.m. to 7 p.m.
Post 634/eXtreme Green Meeting Time	Every Monday starting Oct. 1, 2012, 5 p.m. to 7 p.m.
Graduation Ceremony/End Date	Tue., April 30, 2013

Application Checklist

1. ____ Comp

leted Application

2. ____ Student Narrative
3. ____ Student and Parent/Guardian Agreement
4. ____ Student Information (Optional)

Important Reminders

1. You will be contacted about placement status by the selection notification date: Thurs., Sept. 20, 2012.

2. Membership dues—$25 per post. **NO PERSONAL CHECKS WILL BE ACCEPTED FOR PROJECT DUES**. **Note**: **Dues will be accepted at the Orientation**.

3. Questions can be addressed by phone: 216–433–6656 or e-mail: GRC-Intern@mail.nasa.gov.

2012–2013 EXPLORING PROJECT STUDENT APPLICATION FORM
EDUCATIONAL PROGRAMS OFFICE

Please print in black or blue ink only.

Full legal name_____ Date of birth_____
Last name, suffix (e.g., Jr.) First name Middle name *mm dd year (e.g., 10/15/1987)*

Place of birth_____ Gender: ❒Male ❒Female
City, State, Country

U.S. Citizen ❒Yes ❒No

*Note: If U.S. citizen born outside of the United States or Puerto Rico, and selected for this project, you **must** provide your Naturalization paperwork and/or Passport to our office 5 days prior to the Orientation <u>and</u> upon arrival bring the original copies with you to ensure you are granted security clearance at the front gate.*

You Must Provide <u>Both Addresses</u>:

Home address
_____

_____
City State Please provide your 9-digit ZIP Code
See http://zip4.usps.com/zip4/welcome.jsp

Telephone no. (_____)_____

Cell no. ( ) _____

Student e-mail address
_____

Parent/guardian name
_____

Parent/guardian e-mail address
_____

School name (Do not abbreviate)
_____

School address_____
If homeschooled, write "homeschooled"

_____
City State ZIP Code

School telephone no. (_____)_____

Academic level as of Fall 2013:

❒ HS Freshman ❒ HS Sophomore

❒ HS Junior ❒ HS Senior ❒ College Freshman

Name and e-mail address of guidance counselor

_____
Print name

School direct telephone number _____

_____
E-mail

Placement Information

I am interested in the following activity groups: rank in order of preference 1 to 5 (1 is the highest and 5 is the lowest)

Post 630 - Aeronautics Activities	**Thursday, 5 to 7 p.m.**
Post 631 - Computer Technology	**Thursday, 5:15 to 7:15 p.m.**
Post 632 - Balloon SatTechnology	**Thursday, 5 to 7 p.m.**
Post 633 - Human Spaceflight	**Tuesday, 5 to 7 p.m.**
Post 634 - eXtreme Green	**Monday, 5 to 7 p.m.**

Check those that apply to you:

❒ I have been in the Aeronautics Activities Post 630 for _____ year(s)
❒ I have been in the Computer Technology Post 631 for _____ year(s)
❒ I have been in the BalloonSat Technology Post 632 for _____ year(s)
❒ I have been in the Human Spaceflight Post 633 for _____ year(s)

Comments:_____

Office use only

Date received_____ Date processed_____ Initials_____ 630 631 632 633 634

How did you learn about the program?

❒ Faculty member or school official
❒ Group visit to Glenn Research Center (GRC)
❒ Inquiry to NASA about summer opportunities
❒ NASA Web site
❒ GRC Educational Programs staff
❒ GRC Educational Programs Web site
❒ Flyer
❒ Public Outreach Event
❒ Friend
❒ Other (please specify)_____

Student Narrative

Describe how your experience at NASA will help further your anticipated college/career interests.

STUDENT AND PARENT/GUARDIAN AGREEMENT

I understand that my son/daughter, _____, is applying to

Student's name (please print)

participate in the Exploring Project from October to April.

I certify, by my signature below, that I am a citizen of the United States of America and that all information contained in this application is correct. I further understand and agree that any misrepresentation or inaccurate information on this completed application will be cause for disqualification for consideration from participation in the Exploring Project and other NASA programs.

If selected to participate, I understand that

- My son/daughter must participate for the full duration of the project and associated activities (October to April). Each participant is allowed to miss up to three post meetings prior to dismissal. Additionally failure to abide by project safety and security policies could result in his/her termination. In the event he/she cannot fulfill this commitment, I understand that his/her position as a Exploring Project student will terminate and dues are nonrefundable.
- My son/daughter can participate in the same post for a maximum of 2 years.
- I grant permission that my son/daughter to participate in the Exploring Project and all program-related activities.
- I ensure that my son/daughter will have transportation to and from the NASA Glenn Research Center.
- I understand that my son/daughter MUST be courteous and respectful to ALL of the project staff and students. If he/she is not, this is grounds for dismissal from the project.
- I understand that my son/daughter is responsible for completing the required Pre and Post Surveys.
- I authorize the staff to release my son/daughter's name and address to educational organizations so he/she can be provided with current information on scholarships, other educational programs, and college financial aid information to enable NASA and its contractors to track and monitor the progress of the Exploring Project participants.
- My son/daughter's Exploring Project badge **must be returned** to security as all badges that are issued need to be accounted for in order to be considered for future educational programs and be allowed on the Center.

Student	**Parent/Guardian**
Printed Name	Printed Name
Signature	Signature
Date	Date

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STUDENT INFORMATION

Name (print): _____

Program you are applying for: 2012–2013 Exploring Project

In order to determine the degree to which members of each ethnic and racial group are reached by this announcement, NASA requests that the student check the appropriate block(s) below. Submission of this information is **VOLUNTARY**. The information solicited on this form will not be available to those responsible for reviewing applications, but will be used by NASA primarily to determine the extent to which various populations are represented in the applicant pool. This information will remain strictly confidential.

Please complete all questions even if your response is "Do not wish to provide."

What is your ethnicity (check one)
- ❑ Do not wish to provide
- ❑ Hispanic or Latino
- ❑ Not Hispanic or Latino

What is your Race (check one or more)
- ❑ American Indian or Alaska Native
- ❑ Asian
- ❑ Black or African-American
- ❑ Native Hawaiian or Pacific Islander
- ❑ White
- ❑ Some other race
- ❑ Do not wish to provide

Individual with a disability (check one or more)
- ❑ Hearing impairment
- ❑ Visual impairment
- ❑ Mobility/orthopedic impairment
- ❑ Other _____
- ❑ None
- ❑ Do not wish to provide

Please list any special accommodations required:
_____
_____
_____
_____
_____
_____

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